



# Instruction Sheet

Manufacturer of the Highest Quality Engine Blocks, Heads & Manifolds.

CASTING ID# **I-052**

## S/R TORQUER SMALL BLOCK CHEVY CYLINDER HEAD

### Technical Instructions for assembled & bare head part numbers:

<b>042660</b>	<b>I-052 Bare head, 23° valve angle, 170cc intake runner, 67cc chamber, straight plug</b>
042660 - 1	Assembled head, Hydraulic Flat Tappet Camshaft
<b>042670</b>	<b>I-052 Bare head, 23° valve angle, 170cc intake runner, 76cc chamber, straight plug</b>
042670 - 1	Assembled head, Hydraulic Flat Tappet Camshaft



### Specifications:

Intake Runners: 170cc Port Dimension: 1.940" x 1.170"

Exhaust Runners: 65cc Port Dimension: 1.340" x 1.370"

Combustion Chamber Volume: 67cc or 76cc. See cylinder head part number list for chamber size.

Valve Guides: Integral cast iron guide

Valve Guide Spacing: Ctr-Ctr 1.900" (Intake stock location / Exhaust is moved .040")

Valve Seats: Intake = integral cast iron seat, Exhaust = Durabond Powdered metal seat .006" press fit

Valve Seat Dimension: Exhaust = O.D. 1.650" x 1.280 x .375"

Valve Seat Angles: Intake = 38°-(45°(.040"))-60°-75° Exhaust = 38°(45°(.060))-500radius-75°

Pushrods: To obtain proper rocker geometry, pushrod length will need to be determined by using an adjustable checking pushrod.

Rocker Arms: These heads utilize a standard offset rocker arm designed for the Small Block Chevy.

NOTE: When using rocker arms greater than a 1.5 ratio, it may be necessary to elongate the pushrod guide holes in the cylinder head.

Head Bolts: standard SBC head bolt hardware (ARP bolts 134-3601)

Head Studs: standard SBC head Stud hardware (ARP studs 134-4001)

Head Gaskets: Fel Pro 7733PT or 1003. If steam holes are needed for 400 engines, use a 1014 gasket. NOTE: heads are not drilled for steam holes. If steam holes are desired, it is necessary to drill six 1/8 steam holes. To drill, invert the cylinder head with the deck side up.

Using a head gasket as a template, center punch the head where the steam holes will be drilled. The three steam holes closest to the intake side of the must be drilled at a 30 degree angle toward the exhaust side of the head. The remaining three steam holes that are closest to the exhaust side of the head will be drilled straight down.

Intake Manifold: any conventional SBC intake manifolds

Pistons: Most 23° aftermarket pistons

Spark Plugs: .460" reach, 5/8" hex plug.

Emissions: To activate for emissions, the cylinder head will need to be disassembled, then you will need a 6 inch long, ¼ diameter drill bit to drill through the heat crossover passage (found in the center of the intake flange) to the exhaust bowl. When the crossover passage is drilled, this activates EGR operation making this head an emission legal direct replacement for the following GM part numbers:

Head Bolt Torque Specs:

Torque all head bolts to 75 ft. lbs w/ oil. Before torquing, coat the head bolts and rocker studs with a thread sealing paste. **Note:** Refer to the factory service manual for proper head bolt tightening sequence

Rocker Arm Studs: 45 ft. lbs. w/oil

NOTE: Specs are for reference only. Always measure before machining. REMEMBER: MEASURE TWICE, CUT ONCE.

Maximum Valve Diameter: 2.100 Intake & 1.625 Exhaust.

Maximum Spring Seat Depth: Spring seat is cut to accept a 1.550 spring. IT IS NOT RECOMMENDED TO CUT THE SPRING SEAT DEEPER OR TO ENLARGE THE SEAT FOR A SPRING DIAMETER OVER 1.550.

Maximum Spring Diameter: 1.550

Maximum Flat Mill: .020

Approximate Milling Guidelines: .0065 per 1cc

## Brackets and Accessories:

1. The S/R heads have accessory bolt holes drilled in the factory locations and seven exhaust bolt holes for use with newer style factory exhaust manifolds.
2. The S/R heads (042660 & 042670 series) are drilled to accept either perimeter bolt valve cover or center bolt valve cover.  
It is **Highly Recommended** to use the perimeter bolt style valve cover to eliminate clearance issues.
3. Before installing center bolt valve covers, the perimeter bolt valve cover bosses must be machined down on the **inside** of the valve cover rail. **DO NOT MACHINE THE VALVE COVER RAIL!** The two valve cover mounting bosses on the intake side must be machined .220 down from the valve cover rail & the bosses on the exhaust side of the rail must be machined down to a depth of .180.
4. The temperature sensor hole on the S/R cylinder heads is 3/8 NPT. Some applications require the use of a temperature sensor with a 1/2 NPT thread. If this is the case, the S/R cylinder head will need to be drilled and tapped for 1/2 NPT. **This procedure MUST be done prior to installation.**

## Before Final Assembly:

Please inspect castings for defects or damage prior to modification, assembly or installation. Cylinder heads that have been modified, installed or used ARE NOT RETURNABLE. At this time install the cylinder head to the block with no head gasket and snug the bolts.

**This assembly should be checked to assure that all components are compatible with your combination before assembling your engine. There is no warranty on valve springs of any type.**

1. Due to different ratio rockers and different deck height blocks, now is the time to check for pushrod to cylinder head interference. If the pushrod has interference with the cylinder head, remove the head, grind the casting the needed amount. Clean the head after grinding then reinstall the head using the mock up procedure and recheck the clearance. Repeat the procedure as necessary until the desired clearance is achieved.
2. Once everything has been checked and all the desired clearances and specifications achieved, final assembly may begin.
3. If a new flat tappet camshaft is being installed with a-2 cylinder head, it is HIGHLY RECOMMENDED to remove the inner valve spring during the camshaft break in procedure. After the cam is broken in, reinstall the inner valve spring.
4. If you bought bare castings then remember, you must wash the heads before assembly.

## ATTENTION:

As a safety precaution, due to the nature of all sand castings occasionally an exhaust, valve cover, intake manifold and rocker arm studs may go through into the water jacket or an intake port some are by design. This is rare but can happen and will not always be evident by the naked eye or even sometimes may pass a pressure test. So with that said and to insure that you do not run into a problem of leaks, we recommend that you use thread sealer on these bolts or studs. Better safe then sorry!

## WARRANTY CLAIMS: (See Warranty Sheet that came with item for specific details)

Contact Customer Service to obtain a Return Material Authorization number directly from World Products for any warranty return. **DO NOT CONTACT YOUR DEALER. DO NOT RETURN PARTS WITHOUT AUTHORIZATION.** Returned product must be shipped prepaid. Collect shipments will be refused. Returned parts must have RMA number on the outside of the package, a copy of original bill of sale inside and a written explanation of the suspected defect. If the item is found defective, World Products will repair or replace it at its discretion and return it freight prepaid. No additional labor claims will be paid. There will be no exceptions to this rule.



Casting ID numbers are located under the valve cover cast into the head face. A guide plate or stud girdle may need to be removed to view. Casting numbers identify which head you may have. Use the Part Number to determine which version of the head you have. Part Numbers are located and stamped on the ends of the heads prior to 2005, then engraved on the ends of the heads after 2005. As of mid 2012 the Part Number was moved to the intake face just under the valve cover rail. Part Numbers may indicate original combustion chamber and intake runner sizes, but

heads are often modified by users over the course of time. The best way to be sure of what you have is to have the heads measured by a qualified machine shop. If you were not the original purchaser of the heads this is the only way to be certain of what you have. Prior to 2013, there is no date of manufacture on the heads. World Products cannot verify any other numbers which may have been stamped on the heads by other parties who may have made modifications.

### Casting No. Description

#### **Small Block Chevy Heads**

<b>I-037</b>	SPORTSMAN II	200cc Intake / 64cc & 72cc Chambers / Cast Iron SBC
<b>I-038</b>	MOTOWN 220	220cc Intake / 64cc Chambers / Cast Iron SBC
<b>I-039</b>	SPORTSMAN	(Discontinued)
<b>I-052</b>	S/R & S/R TORQUER	170cc Intake / 67cc & 76cc Chambers - Cast Iron SBC
<b>I-058</b>	S/R 305	170cc Intake / 58cc Chambers / Cast Iron SBC

#### **Big Block Chevy Heads**

<b>I-043B</b>	MERLIN	345cc Intake / 119cc Chamber / Rectangle Port / Cast Iron BBC
<b>I-043C</b>	MERLIN	320cc Intake / 119cc Chamber / Rectangle Port / Cast Iron BBC
<b>I-043D</b>	MERLIN	269cc Intake / 119cc Chamber / Oval Port / Cast Iron BBC

#### **Small Block Ford Heads**

<b>I-051</b>	WINDSOR	(Discontinued)
<b>I-056</b>	WINDSOR JR.	180cc Intake / 58cc Chamber / Cast Iron SBF
<b>I-057</b>	WINDSOR JR.	180cc Intake / 58cc Chamber / Cast Iron SBF
<b>I-061</b>	WINDSOR SR.	200cc Intake / 64cc Chamber / Cast Iron SBF



**WORLD**  
PRODUCTS



**ARP**  
automotive Racing products

We recommend using ARP-Fasteners for all World heads.

# SBC Horsepower

Motown, Sportsman II and S/R Torquer

## Head Bolt Kits

### Chevrolet

#### Black Oxide

**134-3601** SB 23° cast iron OEM,  
GEN 111 Vortec/Trk&most  
Edelbrock LT-AFR, Brodix-8,  
-10, -11, -11xb, LT-1, Pro-1, Hex

**134-3701** SB 23° cast iron OEM,  
GEN 111 Vortec/Trk&most  
Edelbrock LT-AFR, Brodix -8,-10,  
-11, -11xb, LT-1, Pro-1, 12 pt

## Head Stud Kits

### Chevrolet

**134-4001** 23°OEM iron/alum Chev  
Gen III Vortec/Trk hex head

**234-4401** 23°OEM iron/alum Chev  
Gen III Vortec/Trk 12 pt

**234-4301** 23°OEM iron/alum Chev  
Gen III Vortec/Trk 12 pt u/cut

**234-4601** BBC Cast OEM,  
Alum factory heads,  
also early Bowtie

## Valve Cover Bolts & Studs

### Chevrolet

#### Black Oxide

**100-7507** SB hex bolt 1/4-20 .812"

**100-7503** SB 12pt bolt 1/4-20 .812"

**200-7603** SB hex stud 1/4-20 1.500"

**200-7613** SB 12pt stud 1/4-20 1.500"

#### Stainless 300

**400-7507** SB hex bolt 1/4-20 .812"

**400-7503** SB 12pt bolt 1/4-20 .812"

**400-7603** SB hex stud 1/4-20 1.500"

**400-7613** SB 12pt stud 1/4-20 1.500"

## Rocker Studs

### Chevrolet

**134-7101** SB 3/8 typical application

**134-7104** SB 3/8 w/roller rockers

**134-7103** SB 7/16 typical application

**235-7204** SB Alum. heads int. studs

**235-7203** SB Alum. heads Exh. studs

## Intake Bolt Kits

### Chevrolet

#### Black Oxide

**134-2001** SB 265-400 factory OE

**134-2101** SB 265-400 factory OE

**134-2002** SB 305-350 Vortec

**134-2103** SB 305-350 Vortec

**134-2004** SB 305-350 Tuned port

**134-2104** SB 305-350 Tuned port

#### Stainless 300

**434-2001** SB 265-400 factory OE

**434-2101** SB 265-400 factory OE

**434-2002** SB 305-350 Vortec

**434-2102** SB 305-350 Vortec

**434-2004** SB 305-350 Tuned port

**434-2104** SB 305-350 Tuned port

#### NASCAR

**334-2102** SB 1.000" Drilled

**334-2103** SB 1.250" Drilled

## Header Bolt & Studs

### Chevrolet

#### Black Oxide .750" length

**100-1101** 3/8 hex 3/8 wrench

**100-1201** 3/8 12pt. bolt 3/8 wrench

**100-1103** 3/8 hex, drilled 3/8 wrench

**100-1203** 3/8 12pt, drilled 3/8 wrench

#### Black Oxide 1.670" length

**100-1412** 3/8 dia. stud

**100-1402** 3/8 dia. stud

#### Black Oxide 1.000" length

**100-1111** 3/8 hex bolt 3/8 wrench

**100-1211** 3/8 hex bolt 3/8 wrench

#### Stainless 300 .750" length

**400-1101** 3/8 hex bolt 3/8 wrench

**400-1201** 3/8 12pt bolt 3/8 wrench

**400-1103** 3/8 hex, drilled 3/8 wrench

**400-1203** 3/8 12pt, drilled 3/8 wrench

#### Stainless 300 1.670" length

**400-1412** 3/8 dia. stud

**400-1402** 3/8 dia. stud

#### Stainless 300 1.000" length

**400-1111** 3/8 hex bolt 3/8 wrench

**400-1211** 3/8 hex bolt 3/8 wrench